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ABSTRACT

The first of the two experiments reported here was designed to test the assumption that the phenomenological feeling of success or failure can be translated into behavior. Forty-five male undergraduates at Princeton University were given a task to perform. They then received feedback that they had been either very successful, mediocre, or very unsuccessful in their performance. Following their feedback, subjects were shown, via videotape, the picture rating task used by Rosenthal in a previous experiment. It was found, as predicted, that subjects who underwent a successful experience prior to viewing the photographs, viewed the faces pictured in the photographs as being more successful than subjects who underwent neutral or failure experiences. The next study was designed to test the hypothesis that subjects who receive consistent and frequent eye contact from experimenters feel more positively about themselves than subjects who receive very little eye contact. Assistant experimenters, blind as to the hypotheses of the experiment, administered the picture rating task to subjects. Half of the assistant experimenters were instructed to make frequent eye contact with subjects while the other half were instructed to avoid eye contact. To test the hypothesis, subjects' self-evaluations were assessed. [This document has been reproduced from the best available copy.] (Author/JM)

## Abstract

Recent attention has been focused on the possibility that teacher expectations are partially responsible for the poor academic performance of children from disadvantaged ethnic groups. The present research attempted to investigate the process by which those expectations might be transmitted.

It was suggested that teachers' expectations of a student's success or failure might be transmitted through the use of primary visual cues (eye contact). It was reasoned that the use or avoidance of eye contact between teacher and student may be responsible for a student feeling either positively or negatively about himself. Feelings thus generated might be transferred to the student's academic performance.

The results of two laboratory experiments were presented. In the first, it was found that subjects who are made to feel successful or unsuccessful performed differently on a seemingly neutral task. In the second experiment, it was found that the use or avoidance of eye contact made subjects feel successful or unsuccessful and, in turn, affected their performance on the neutral task.

The implication of these results for the transmission of expectancy in the classroom were discussed. Directions in which future research should proceed were suggested.

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Final Report

Project No. OB113

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# SELF-FULFILLING PROPHECY IN THE CLASSROOM: An attempt to Discover the Processes by which Expectations are Communicated

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October 27, 1971

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Table of Contents


| | | Page |
|---|---|---|
| 1. | Table 1 | 6 |
| | Table 2 | 10 |
| 2. | Introduction | 1 |
| 3. | Method-Experiment I | 4 |
| 4. | Results-Experiment I | 6 |
| 5. | Method-Experiment II | 8 |
| 6. | Results-Experiment II | 10 |
| 7. | Conclusions | 12 |
| 8. | Bibliography | 13 |

List of Tables


| | | Page |
|---|---|---|
| Table 1 | Mean Ratings of Successfulness of Photographs Experiment I | 6 |
| Table 2 | Mean Ratings of the Photographs Experiment II | 10 |

# Introduction

One of the more interesting hypotheses concerning the differential academic performance of middle class and ghetto school children has centered on the expectancy which the teacher brings into the classroom. Clark (1965) has presented data to the effect that teachers of school children in Harlem expected Negro children to perform more poorly than white children. Rosenthal and Jacobson (1968) showed that children whose teachers expect them to perform in an inferior fashion do actually perform worse than children whose teachers expect superior performance. Consequently, investigators are now entertaining the possibility that teachers' expectancies may account for some of the observed differences between ethnic groups in academic performance.

How are such expectancies transmitted? Rosenthal and Jacobson were not able to find any differences between the way in which teachers treated children whom they expected to perform well and children who were not expected to perform well. The research summarized in this report represents an attempt to shed some light on the mechanism whereby expectancies are subtly and unwittingly transmitted.

The Rosenthal and Jacobson study emerged from a series of laboratory investigations which examined the role of an experimenter's expectancy in influencing the results obtained from subjects. For example, Rosenthal and Fode (1963) contacted ten advanced undergraduate and graduate students to serve as "student-experimenters" in a study that was supposedly designed to replicate a very well known experiment in social psychology. Their task was to show a series of photographs of male and female faces to undergraduate subjects and to ask the subjects to rate the photographs in terms of how "successful" or "unsuccessful" they appeared. Half of the student-experimenters were led to believe that, in the well known experiment, students usually see the photographs as representing successful persons while the other half of the experimenters were led to believe that subjects usually rate the pictures as unsuccessful.

The results of the experiment indicated that the expectancy which the student-experimenters had been given significantly influenced the way in which the undergraduate subjects rated the photographs. When the experimenters expected that the pictures would be rated as successful, the subjects actually rated the pictures as successful. Similarly, experimenters expecting failure

ratings obtained those ratings from subjects. What was still more surprising is that all student-experimenters were given a standardized, written set of instructions to use in explaining the picture rating task to the subjects. Nonetheless, the experimenters unwittingly transmitted their expectation to their subjects who eagerly complied.

Subsequently, investigators have looked for the communication channel that might be responsible for the transmission of expectancies. Rosenthal (in press) has reported unpublished data by Zoble and by Kennedy, Edwards and Winstead which support the notion that visual cues are an important part of the communication process. They found that expectancy effects in the laboratory were maintained even when all auditory channels were blocked.

Zoble's and Kennedy et al.'s data, still leave us with the question of how the visual cues operate. It is conceivable that subjects do not "read" the experimenter's expectancy directly. Rather, the experimenter, as the authority figure, may be able to alter the way in which the subject feels about himself--and this feeling may be what ultimately influences his behavior.

Consider a typical subject in Rosenthal and Fode's (1963) experiment. If he is in a situation with an experimenter who refuses to make eye contact with him and consistently stares at the floor, the walls, etc., it is likely that the subject will feel that he has done something wrong and his phenomenological state may be akin to failure. This feeling may then be projected onto the faces in the photographs which would account for the pictures being rated as failures. Conversely, a subject confronted by an experimenter who makes consistent eye contact may experience the feeling of success. He then may project his positive feeling onto the stimulus photographs.

The general hypothesis is that the authority figure who expects successful or unsuccessful behavior on the part of his subject may use fundamental visual cues (eye contact) to make the subject feel successful or unsuccessful. That feeling of success or failure may then be translated into behavior. In the case of Rosenthal and Fode's experiment, it may be projected onto the faces in the photographs. In the school situation, it may cause the students to behave consistently with the successful or unsuccessful feeling they have about themselves (cf. Aronson and Carlsmith, 1962).

In the present project, the laboratory situation was used in an attempt to assess the role of eye contact in generating feelings of success and failure and to determine if feelings so gen-

erated would be projected onto seemingly neutral tasks such as the rating of photographs. It was hoped that this would form a necessary first step in understanding the process transpiring in the more complex world of the classroom.

## Method - Experiment I

### General Overview

The first experiment was designed to test an assumption necessary to the general hypothesis: That the phenomenological feeling of success or failure can be translated into behavior. Subjects were given a task to perform. They then received feedback that they had been either very successful, mediocre or very unsuccessful in their performance. Following their feedback, subjects were shown, via videotape, the picture rating task of Rosenthal and Fode. It was predicted that subjects would rate the pictures as a function of the degree of success they had experienced on the first task.

### Subjects

Forty-five male undergraduates at Princeton University served as subjects in an experiment entitled "Educational Research." They were offered $1.50 for volunteering. Subjects were run individually, and were randomly assigned to one of three experimental conditions.

### Procedure

When a subject arrived for the experiment, he was seated in a small room in which there was a videotape recorder and a video monitor. The experimenter explained that all further instructions would be given via video tape so that all volunteers would receive precisely the same instructions. On the video tape, the experimenter began. "In cooperation with Princeton University's counselling service, we are collecting some normative data on a new high level intelligence test. Already several groups of subjects at various colleges and universities around the country have been given the test. Before beginning to mass produce the tests, however, data are needed on the effects of taking the test alone, as compared to taking the tests in, for example, a classroom setting. This is where you come in. At the moment we are interested in the results from subjects who take the test under individual administrative conditions. All of the problems on the test (there are thirty) are designed to discriminate at the very highest level of intelligence. Therefore, do not be surprised if you fail to obtain a large number of correct answers. We do have some norms on Princeton undergraduates, however, and since nearly all previous subjects have expressed interest in seeing how they did, the proctor can quickly score your answer sheets and let you know how you did on completion of the test. The data we have so

far indicate that the average Princeton undergraduate gets about 16 or 17 of the questions correct."

The purpose of these instructions, of course, was to provide a mechanism whereby subjects could succeed or fail at a task. The test that was used was adapted from Jones, Rock, Shaver, Goethals and Ward (1968). It consisted of a series of analogy problems that actually had no correct answers. The test had been found to be highly believeable and useful in creating feedback by Jones et al. (1968) and Cooper (1971).

After the subjects completed the test, they were "graded" by the experimenter. He then gave the subject a card with his score printed on it. In the success condition, the card stated that the subject answered 26 problems correctly. He was told that this put him in the 95th centile of all Princeton undergraduates who have taken the test. In the failure condition, the subject was told that he answered 9 problems correctly, placing him in the 25th centile. A third, neutral conditon was also run. In this condition, subjects were told that they answered 18 problems correctly and were at the 60th centile.

After subjects receive this feedback, the video recorder was turned on once again. On the tape, the experimenter delivered the instructions used by Rosenthal and Fode to introduce the picture rating task. He stated, "We are in the process of developing a test of empathy. This test is designed to show how well a person is able to put himself into someone else's place. I am going to show you a series of photographs. For each one I want you to judge whether the person pictured has been experiencing success or failure. To help you make more exact judgments, you are to use some rating scales. As you can see, each scale runs from -10 to +10. A rating of -10 means that you judge the person to have experienced extreme failure. A rating of +10 means that you judge the person to have experienced extreme success. A rating of -1 means that you judge the person to have experienced mild failure, while a rating of +1 means that you judge the person to have experienced mild success. You are to rate each photo as accurately as you can. There are ten pictures to be rated - one each on the ten rating scales. I will show each picture for 5 seconds. Then I will ask you to rate that picture and we will go on to the next picture."

The ten photographs were then shown on the video tape and rated by the subjects. It was predicted that subjects in the success condition would rate the photographs as more successful than subjects in the neutral condition who, in turn, would rate the pictures as more successful than subjects in the failure condition.

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## Results - Experiment I

The results supported the prediction of the experiment. It was found that subjects who underwent a successful experience prior to viewing the photographs viewed the faces pictured in the photographs as being more successful than subjects who underwent neutral or failure experiences. The results are presented in

Table 1

Mean Ratings of Successfulness of Photographs - Experiment I

| Success Condition | Neutral Condition | Failure Condition |
|---|---|---|
| +1.39 | +.30 | -.77 |

Note: Higher numbers indicate greater perceived success

Table 1. An analysis of variance performed on the data showed the overall effect of the feedback manipulation to be highly reliable ($F=6.09$; 2 and 42 df; $p<.01$).

Both the failure and success conditions were marginally different from the ratings of subjects in the neutral condition ($p<.10$). But when the picture ratings of subjects who had experienced success were compared to those of subjects who had experienced failure, the effect on the picture rating was quite strong ($F= 12.16$; 1 and 42 df; $p<.01$).

Our original intention was to demonstrate that the eye contact between an experimenter and a subject is an important factor in making a subject feel positively or negatively about himself and the feelings so generated can be projected onto the stimulus photographs. The first study demonstrated that a subject's view of himself is projected: Subjects who were made to feel successful saw the photographs as successful whereas subjects who had experienced failure saw the same photographs as unsuccessful. Next, it was necessary to show that subjects who receive consistent and frequent eye contact from experimenters feel more positively about themselves than subjects who receive very little eye contact. As the first study suggests, differences in the way subjects are made to feel should be reflected in the ratings given to the stimulus photographs.

An experiment was designed in which assistant experimenters, blind as to the hypotheses of the experiment, administered the picture rating task to subjects. Half of the assistant experimenters were instructed to make frequent eye contact with subjects while the other half were instructed to avoid eye contact. To test the hypothesis, subjects' self-evaluations were assessed. It was predicted that subjects who had received considerable eye contact would feel more positively about themselves and would project their positive feelings onto the stimulus photographs.

## Method - Experiment II

Subjects. Eighty male high school students participated in the experiment. They came in response to advertisements promising to pay $1.50 for a study entitled "Picture Rating."

Procedure. Two students were scheduled for each experimental session. When the experimenter arrived, she announced that "for purposes of control" one of the students would assist in conducting the experiment while the other would serve as the subject. She asked the student who arrived first to serve as the assistant experimenter and ushered him into a second room to describe the task.

The experimenter thanked the student for agreeing to help and explained that past research has shown it to be better if many people conduct an experiment rather than just one person. Consequently, half of all the students who volunteer for the experiment are being asked to serve as assistants. The experimenter then gave the assistant a printed set of instructions and commented, "In this experiment, you will be replicating a very well-known study. Here are the instructions that I would like you to read to the subject. I will give you an opportunity to practice the instructions before you actually deliver them to the subject." In the High Eye Contact conditions, the experimenter added, "Oh, by the way, it is also very important that you look at the subject as often as possible--let's say at least 30 times--while you deliver the instructions. Here is an example of how you should read." The experimenter then illustrated the technique for the assistant.

In the Low Eye Contact conditions, the experimenter substituted the sentence, "Oh, by the way, it is very important that you not look at the subject while you deliver the instructions." She then tave the assistant an example of the technique.

The instructions which all assistant experimenters were to read were identical to those of experiment I. They informed subjects that Princeton University was in the process of developing a test of empathy, instructed them in the picture rating task and the use of the rating scales. As the assistant experimenters administered the instructions to the subjects, the experimenter sat behind an observation screen and counted the number of times that the assistant glanced at the subjects.

After the assistant experimenters had explained the task, half of all subjects were shown the ten photographs used in the pilot study and were asked to rate them. However, the other half of the subjects in the high and low eye contact conditions heard the assistant experimenter add, "Before I show you the pictures, I have been asked to give you this short questionnaire. The instructions are at the top of the page. When you are finished, I will show you the photographs." The questionnaire was designed to assess the mood of the subjects. It was given to only half of the subjects since the possibility existed that the administration of the questionnaire might, in some way, interact with the ratings that subjects would give to the stimulus photographs. The questionnaire consisted of seven pairs of polar adjectives such as "Happy-Sad," "Fortunate-Unfortunate" and "Unsuccessful-Successful." Subjects were asked to rate their present feeling about themselves on a 15-point continuum with regard to each of the seven pairs of adjectives. After the subjects had completed the scales, the person perception task was administered.

At the conclusion of the person perception task, the experimenter thanked the subject and the assistant for their participation and explained the true nature of the experiment to them. The reasons for the use of deceptions were discussed.

## Results - Experiment II

The experimenter's tally of the number of glances which the subjects received from the assistants revealed that the assistants had carried out their assignments. Assistants in the high eye contact condition glanced an average of 30.1 times at their subjects. On the other hand, assistants in the low eye contact conditions glanced an average of 0.15 times.

Half of the subjects in the high and low eye contact conditions were given a list of seven pairs of polar adjectives designed to assess their mood after they had been exposed to the eye contact manipulation. The adjectives were scored such that an extremely positive rating for any pair of adjectives was assigned a score of 1, while an extremely negative self-rating was assigned the score of 15. Each subject's mood score was the sum of his ratings on the seven adjective pairs. Total scores could range from an extremely positive self-rating of 7 to an extremely negative 105.

The results showed that subjects in the high eye contact condition felt more positively about themselves than subjects in the low eye contact group. The mean rating for subjects in the high eye contact condition was 38.3 while the low eye contact condition had a mean of 52.6. A $t$ test revealed the difference to be statistically reliable ($t$ = 2.53, 18 $df$, $p < .05$).

Subjects' ratings of the stimulus photographs were treated as a 2x2 factorial design. The two eye contact groups provided one factor, while being or not being exposed to the mood questionnaire served as the second factor. The results are presented in Table 2.

Table 2
Mean Ratings of the Photographs - Experiment II

| | Eye Contact | |
|---|---|---|
| | Low | High |
| Mood Scale Administered | -.67 (n=10) | +.80 (n-10) |
| Mood Scale Not Administered | -.40 (n=10) | +.59 (n=10) |

Note: the higher the number, the more successful the rating.

In support of this hypothesis, it can be seen that subjects in the high eye contact conditions rated the stimulus photographs as considerably more successful than subjects in the low eye contact conditions ($F$ = 8.80, $df$ = 1/36, $p$ < .01). The F ratios for both the interaction and presence or absence of the mood scale were less than 1.

## CONCLUSION

We initially set out to determine how expectancy effects are transmitted. The results of our experiments have provided encouragement for the notion that primary visual cues may be an important determinant of expectancy transmission. We now know that the degree of eye contact from an authority figure is an important determinant of one's feeling about oneself. Further, we know that the feeling thus generated can affect one's judgments of a supposedly neutral task.

It is clear that the important leap is still to be made. Do authority figures who expect success or failure alter the degree of eye contact that they make with a subject? Do teachers who expect superior performance from students increase their eye contact with those students? Do teachers who expect students to fail at a task transmit that expectation by avoiding eye contact? In the experiments reported above, the behavior of the authority figure was manipulated by the investigator in order to study its effect on the student. That is, the degree of eye contact was manipulated directly by instructions from the investigator to the assistant experimenters. The next step in the process becomes crucial. If the experimenters expected success, would they establish more eye contact with subjects? Future investigations must establish this link. Then, one could proceed to the classroom setting and observe whether the effects discovered in the laboratory are also present in the classroom.

The contribution of the present research is that it points the way toward an understanding of the mediation of expectancy effects. Future research will be necessary to determine if the mediation by visual cues obtains in the classroom and whether other processes can be identified which join with visual mediation to transmit expectancies.

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